WHAT IS CLAIMED IS:

1. A method of making a thermally enhanced printed circuit wiring board substrate for ball grid integrated circuit packages comprising the steps of:

a) providing an initial thin conductive metal core having oppositely facing surfaces,

b) forming one or more holes in said metal core at each of a plurality of through-core via sites,

c) laminating a thin rigidifying non-conductive dielectric sheet to each said oppositely facing surfaces, respectively, and

d) applying at least one thin conductive layer on a surface of one of said thin rigidifying non-conductive sheets and making at least one electrical connection to said initial thin conductive metal core at one of said plurality of through-core via sites.

2. The method defined in Claim 1 including the step of making one or more of Type 1 vias as defined herein at one or more via sites.

3. The method defined in Claim 1 including the step of forming one or more Type 2 vias as defined herein at one or more via.

4. The method defined in Claim 1 including the step of forming one or more Type 3 vias as defined herein at one or more via.

5. The method defined in Claim 2 including the step of forming one or more Type 2 or Type 3 via at one or more via sites.

6. The method defined in Claim 4 wherein said Type 3 via is isolated from the core and connected to the outer layer to build up vias.

7. The method defined in Claim 3 wherein said vias are made by through-hole plating directly to the core layer and followed by plating resulting in sidewall connection with the core.

8. A method defined in Claim 1 wherein said plurality of through-core via sites are drilled, plated through-holes (PTH).

9. The method defined in Claim 1 wherein said vias are made by printing build-up and connection to the core in both top and bottom sides thereof.

10. The method defined in Claim 1 including the step of forming singulation lines at the border of said

substrate which can be predrilled or pre-etched during the first via drill step for each singulation in strip or singulated to delivery format.

11. A thermally enhanced printed circuit (PC) wiring board for ball grid integrated circuit packages comprising a relatively thin, conductive metal core layer having oppositely facing surfaces and one or more holes in the metal core at each of a plurality of through-core via sites,

a first and second thin rigidifying non-conductive laminate sheet attached to said oppositely facing surfaces, respectively, and

at least one conductive circuit pattern on at least one of said thin rigidifying non-conductive sheets and a plurality of vias thereon.

12. The PC wiring board defined in Claim 11 including a plurality of vias made by plating build-up and connecting to the core from both the top and bottom sides thereof.

13. The PC wiring board defined in Claim 11 wherein said conductive metal core layer is copper in the range of 5 - 15 mils think and said laminate sheets are fiberglass.

14. The PC wiring board defined in Claim 13 including one or more additional non-conductive and conductive layers thereon.

15. The PC wiring board defined in Claim 11 including a plurality of vias selected from Type 1, Type 2 or Type 3 vias as defined herein.

16. The PC wiring board defined in Claim 12 including a plurality of vias selected from Type 1, Type 2 or Type 3 vias as defined herein.